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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,060	06/01/2001	Stanton M. Keeler	M-11585 US	2297

7590 04/30/2004

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EXAMINER

TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 04/30/2004

21

Please find below and/or attached an Office communication concerning this application or proceeding.

224

Office Action Summary

Application No.

09/872,060

Applicant(s)

KEELER, STANTON M.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 16-24 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 01 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

2. Applicant's arguments, see Paper No. 20, filed 19 April 2004, with respect to the rejection(s) of claim(s) 16-24 under Nakatsuji, Fumio et al. (US 6332206 B1, hereafter referred to as Nakatsuji) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nakatsuji, Fumio et al. (US 6332206 B1, hereafter referred to as Nakatsuji), Norton; James R. et al. (US 5283159 A, hereafter referred to as Norton) and Finkelstein; Blair I. et al. (US 5392262 A, hereafter referred to as Finkelstein).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuji, Fumio et al. (US 6332206 B1, hereafter referred to as Nakatsuji) in view of Finkelstein; Blair I. et al. (US 5392262 A, hereafter referred to as Finkelstein).

35 U.S.C. 103(a) rejection of claim 16.

Nakatsuji teaches a data storage disk having an error correction code ECC block (Figure 1 in Nakatsuji is an error correction code ECC block) stored on said disk (see Optical Disc I/F 12 in Figure 5 of Nakatsuji), said ECC block comprising: an array of $n2$ rows and $n1$ columns of bytes (col. 1, lines 29-47, Nakatsuji), each row including $m1$ bytes of inner parity and each column including $m2$ bytes of outer parity (see Figure 1 and col. 1, lines 29-47 in Nakatsuji).

However Nakatsuji, does not explicitly teach the specific use of an ECC block of 104 rows and 182 columns of bytes, each row including ten bytes of inner parity and each column including sixteen bytes of outer parity nor does Nakatsuji teach a transparent layer overlaying the information layer.

Note: if the values $n1$, $n2$, $m1$ and $m2$ in Nakatsuji are selected such that $n1=182$, $n2=104$, $m1=10$ and $m2=16$, then the array of Figure 1 in Nakatsuji comprises an array of $n2=104$ rows and $n1=182$ columns of bytes, each row including $m1=10$ bytes of inner parity and each column including $m2=16$ bytes of outer parity. The Examiner asserts

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that one of ordinary skill in the art at the time the invention was made would have been highly motivated to select specific values for n_1 , n_2 , m_1 and m_2 in Nakatsuji based on obvious engineering design choices to ensure adequate error correction capabilities and to ensure that the ECC block complies with standards that dictate the make-up of transport frames and storage sectors for an optical disk. In addition, Finkelstein teaches the use of thin transparent protective films 155 and 156 overlaying a magneto optical disk (col. 8, lines 6-15 in Finkelstein teach that the ultra-thin-transparent protective films 155 and 156 are between 1 and 50 Angstroms thick). Col. 2, lines 31-36 of Nakatsuji teaches that the Nakatsuji patent is designed to address error correction problems associated with modern optical discs. One of ordinary skill in the art at the time the invention was made would have recognized that the discs in the Finkelstein patent are a transmission media and like all transmission media prone to errors and would have been motivated to correct such a problem using an error correction code as taught in the Nakatsuji patent.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Nakatsuji with the teachings in the Finkelstein patent by including an additional step of selecting n_1 , n_2 , m_1 and m_2 in Nakatsuji such that $n_1=182$, $n_2=104$, $m_1=10$ and $m_2=16$ for the optical disc taught in the Finkelstein patent. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that selecting n_1 , n_2 , m_1 and m_2 in Nakatsuji such that $n_1=182$, $n_2=104$, $m_1=10$ and $m_2=16$ would have provided the opportunity to ensure

adequate error correction capabilities and to ensure that the ECC block complies with standards that dictate the make-up of transport frames and storage sectors for an optical disk.

35 U.S.C. 103(a) rejection of claim 17.

Col. 1, lines 29-47 in Nakatsuji teaches that the codewords in Nakatsuji are Reed-Solomon codewords.

35 U.S.C. 103(a) rejection of claim 17.

Col. 1, lines 29-47 in Nakatsuji teaches that the codewords in Nakatsuji are Reed-Solomon codewords.

4. Claims 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuji, Fumio et al. (US 6332206 B1, hereafter referred to as Nakatsuji) and Finkelstein; Blair I. et al. (US 5392262 A, hereafter referred to as Finkelstein) in view of ECMA-279 (ECMA-279 standard for DVD-Recordable Disks, November 1998).

35 U.S.C. 103(a) rejection of claim 18.

Nakatsuji and Finkelstein, substantially teaches the claimed invention described in claims 16 and 17 (as rejected above).

However Nakatsuji and Finkelstein, do not explicitly teach the specific use of dividing an ECC array into eight sectors, each sector having thirteen rows.

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ECMA-279, in an analogous art, teaches that a sector consists of 13 rows with $n1=182$ columns of bytes, each row including $m1=10$ bytes of inner parity. Since 104 divides 13, it is obvious that the ECC block introduced and discussed in the rejection to claim 16 must be stored in 8 sectors of the recording medium taught in ECMA-279 (see Figure 26 on page 30 of ECMA-279).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Nakatsuji and Finkelstein by including an additional step of dividing an ECC array into eight sectors, each sector having thirteen rows. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that dividing an ECC array into eight sectors, each sector having thirteen rows would have provided the opportunity to store the ECC block introduced and discussed in the rejection to claim 16 in 8 sectors of the recording medium taught in ECMA-279 (see Figure 26 on page 30 of ECMA-279).

35 U.S.C. 103(a) rejection of claim 19.

See rejection to claims 16 and 18, above. Note: additional parity generated must be stored in rows allocated for data in order to remain ECMA-279 compliant.

35 U.S.C. 103(a) rejection of claim 20.

ECMA-279 teaches each sector comprises: a four byte identification data (ID) field (see Figure 21 on page 26 of ECMA-279); a two byte ID error detection code field (see

Figure 21 on page 26 of ECMA-279); a four byte error detection code field (see Figure 21 on page 26 of ECMA-279); a six byte copyright management information field (Note: copyright management information is system information) and a 1880 byte user data field (Note: using the data field to store additional ECC information would reduce data storage, see rejection to claims 16, 18 and 19, above).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuji, Fumio et al. (US 6332206 B1, hereafter referred to as Nakatsuji) in view of Norton; James R. et al. (US 5283159 A, hereafter referred to as Finkelstein).

35 U.S.C. 103(a) rejection of claim 21.

Nakatsuji teaches a data storage disk having an error correction code ECC block (Figure 1 in Nakatsuji is an error correction code ECC block) stored on said disk (see Optical Disc I/F 12 in Figure 5 of Nakatsuji), said ECC block comprising: an array of n_2 rows and n_1 columns of bytes (col. 1, lines 29-47, Nakatsuji), each row including m_1 bytes of inner parity and each column including m_2 bytes of outer parity (see Figure 1 and col. 1, lines 29-47 in Nakatsuji).

However Nakatsuji, does not explicitly teach the specific use of an ECC block of 104 rows and 182 columns of bytes, each row including ten bytes of inner parity and each column including sixteen bytes of outer parity nor does Nakatsuji teach a transparent layer overlaying the information layer.

Note: if the values n_1 , n_2 , m_1 and m_2 in Nakatsuji are selected such that $n_1=182$, $n_2=104$, $m_1=10$ and $m_2=16$, then the array of Figure 1 in Nakatsuji comprises an array of $n_2=104$ rows and $n_1=182$ columns of bytes, each row including $m_1=10$ bytes of inner parity and each column including $m_2=16$ bytes of outer parity. The Examiner asserts that one of ordinary skill in the art at the time the invention was made would have been highly motivated to select specific values for n_1 , n_2 , m_1 and m_2 in Nakatsuji based on obvious engineering design choices to ensure adequate error correction capabilities and to ensure that the ECC block complies with standards that dictate the make-up of transport frames and storage sectors for an optical disk. In addition, Norton teaches the use of a magneto optical disk with no protective layer over a recording medium (col. 5, lines 15-16 in Norton teach that a partially reflective optically active recording layer 18 in Figure 2 of Norton is deposited over partial reflective layer 16 on top of the disc with no protective cover). Col. 2, lines 31-36 of Nakatsuji teaches that the Nakatsuji patent is designed to address error correction problems associated with modern optical discs. One of ordinary skill in the art at the time the invention was made would have recognized that the discs in the Norton patent are a transmission media and like all transmission media prone to errors and would have been motivated to correct such a problem using an error correction code as taught in the Nakatsuji patent. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Nakatsuji with the teachings in the Norton patent by including an additional step of selecting n_1 , n_2 , m_1 and m_2 in Nakatsuji such that $n_1=182$, $n_2=104$, $m_1=10$ and $m_2=16$ for the optical disc taught in

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the Norton patent. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that selecting n_1 , n_2 , m_1 and m_2 in Nakatsuji such that $n_1=182$, $n_2=104$, $m_1=10$ and $m_2=16$ would have provided the opportunity to ensure adequate error correction capabilities and to ensure that the ECC block complies with standards that dictate the make-up of transport frames and storage sectors for an optical disk.

6. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuji, Fumio et al. (US 6332206 B1, hereafter referred to as Nakatsuji) and Norton; James R. et al. (US 5283159 A, hereafter referred to as Finkelstein) in view of ECMA-279 (ECMA-279 standard for DVD-Recordable Disks, November 1998).

35 U.S.C. 103(a) rejection of claim 22.

Nakatsuji and Norton, substantially teaches the claimed invention described in claim 21 (as rejected above).

However Nakatsuji and Norton, do not explicitly teach the specific use of dividing an ECC array into eight sectors, each sector having thirteen rows.

ECMA-279, in an analogous art, teaches that a sector consists of 13 rows with $n_1=182$ columns of bytes, each row including $m_1=10$ bytes of inner parity. Since 104 divides 13, it is obvious that the ECC block introduced and discussed in the rejection to claim 21 must be stored in 8 sectors of the recording medium taught in ECMA-279 (see

Figure 26 on page 30 of ECMA-279; Note: additional parity generated must be stored in rows allocated for data in order to remain ECMA-279 compliant.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Nakatsuji and Norton by including an additional step of dividing an ECC array into eight sectors, each sector having thirteen rows. This modification would have been obvious to one of ordinary skill in the art, at the time the invention was made, because one of ordinary skill in the art would have recognized that dividing an ECC array into eight sectors, each sector having thirteen rows would have provided the opportunity to store the ECC block introduced and discussed in the rejection to claim 16 in 8 sectors of the recording medium taught in ECMA-279 (see Figure 26 on page 30 of ECMA-279).

35 U.S.C. 103(a) rejection of claims 23 and 24.

ECMA-279 teaches each sector comprises: a four byte identification data (ID) field (see Figure 21 on page 26 of ECMA-279); a two byte ID error detection code field (see Figure 21 on page 26 of ECMA-279); a four byte error detection code field (see Figure 21 on page 26 of ECMA-279); a six byte copyright management information field (Note: copyright management information is system information) and a 1880 byte user data field (Note: using the data field to store additional ECC information would reduce data storage, see rejection to claims 16, 18 and 19, above).

Conclusion

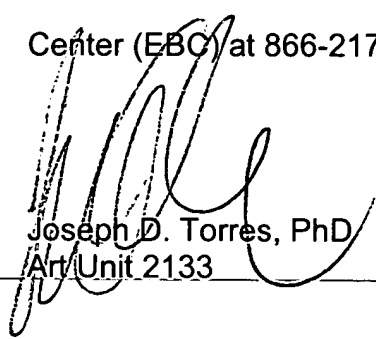
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lee; Neville K. et al. (US 5202880 A) teaches an optical disk with a protective layer between 400 and 800 Angstroms thick. Azuma, Koichi (JP 58137149 A) teaches an optical disk with a protective layer that is 100 Angstroms thick. Tagami, Koki (JP 04209340 A) teaches an optical disk with a protective layer that is 100 Angstroms thick. Chen; Ga-Lane (US 6268073 B1) teaches an optical disk with a protective layer between 5 and 10 Angstroms thick.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (703) 308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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